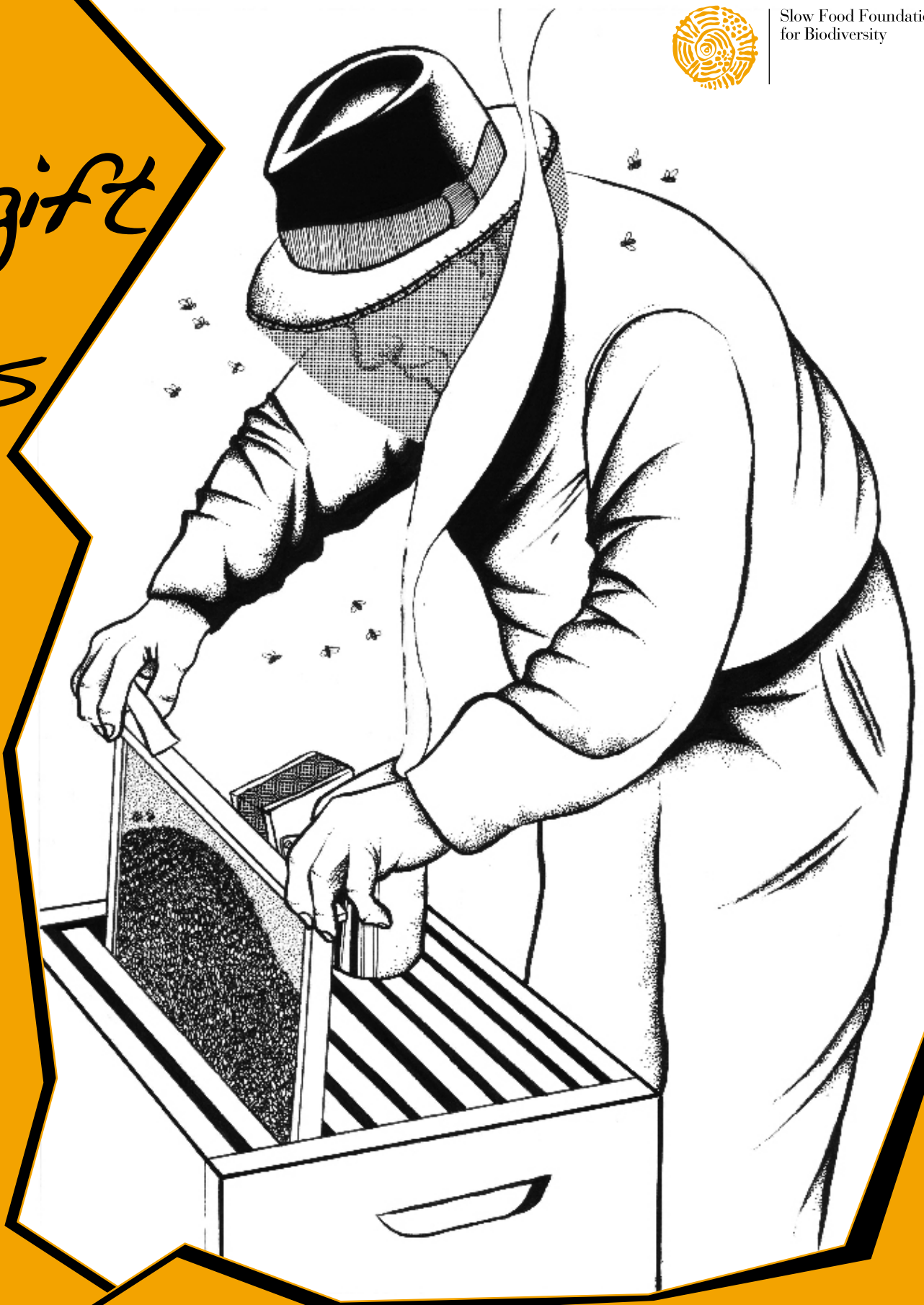
Slow Food®

The gift of bees



Slow Food Foundation for Biodiversity

Slow Food

Slow Food®

Founded by Carlo Petrini in 1986, Slow Food became an international association in 1989. It now boasts 86 000 members, offices (in order of creation) in Italy, Germany, Switzerland, USA, France, Japan and the United Kingdom and supporters in 130 countries.

Slow Food believes in recognizing the importance of pleasure connected to food. We should learn to enjoy the vast range of recipes and flavors, recognize the variety of places and people growing and producing food. We should respect the rhythms of the seasons and conviviality. But the recipe developed by Carlo Petrini and other Slow Food members proposes to add a new sense of responsibility to the search for pleasure, which we all have a right to enjoy. Slow Food has called this approach ecogastronomy. It is an attitude that combines a respect and interest in enogastronomic culture with support for those battling to defend food and agricultural biodiversity around the world. Slow Food stresses the need for taste education as the best defense against poor quality and food adulteration. It is the main way to combat the incursion of fast food into our diets. It helps to safeguard local cuisines, traditional products, vegetable and animal species at risk of extinction. It supports a new model of agriculture, which is less intensive and healthier, founded on the knowledge and know-how of local communities. This is the only type of agriculture able to offer prospects for development to the poorest regions on our planet.
For these reasons Slow Food is committed to safeguarding foods, raw materials and traditional methods of cultivation and transformation. It seeks to defend the biodiversity of cultivated and wild varieties and protect convivial places which form a part of cultural heritage because of to their historic, artistic or social value.

Slow Food has a distinctive approach to these issues. The philosophy of the movement, founded to defend gastronomic pleasure and seek a slower and more aware pace of life, extended its focus from the virtues of food to considering the quality of life and identity. It aims to recognize the history and culture of every social group as it interacts in a network of reciprocal exchange. Whether you consider a variety of fruit or a traditional local dish, you cannot ignore its relationship with history, material culture and the environment where it originated. Slow Food stresses the importance for agricultural and livestock production to maintain a balance of respect and exchange with the surrounding ecosystem. That is why Slow Food has been defined a movement of eco-gastronomes.

The network of over 86 000 Slow Food members is organized into local groups - Condotte in Italy and Convivia elsewhere in the world - which, coordinated by Convivium leaders, organize courses, tastings and dinners, promote campaigns at local level and participate in large international events organized by the association. More than 1000 Slow Food Convivia are active in 130 countries, including 410 Condotte in Italy.

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Slow Food Foundation for Biodiversity

The Slow Food Foundation for Biodiversity raises and invests funds in order to defend food biodiversity and food traditions around the world. It promotes sustainable forms of agriculture that respect the environment, people's cultural identity and animal wellbeing, through many projects.

Slow Food Foundation for Biodiversity

The Slow Food Foundation for Biodiversity was founded in Florence in 2003 in partnership with the Tuscany Regional Authority, and is funded through the efforts of the Slow Food movement, by institutions, private companies, other Foundations and anyone interested in supporting projects defending biodiversity.

The Slow Food Foundation supports and spreads the idea of biodiversity as a factor in human, civil and democratic growth. It acts to defend the food heritage, environmental, farming and artisan heritage in any country. While it supports projects around the world, its most significant commitment is focused on developing countries, where defending biodiversity not only means improving people's quality of life, but can mean guaranteeing life itself.

• The principal project of the Foundation, from an economic and organizational point of view, is that of the Presidia. There are now over 300 Presidia in 42 Countries, which were created to protect small producers and to preserve the quality of artisanal products. Thanks to the initiatives of Slow Food's network of members, leaders, researchers, writers, chefs and producers, the Foundation is able to help improve production techniques, come up with new products or new ways to use products and find local and international markets for then.

• The Foundation's second important project is the Ark of Taste, the catalogue of quality food products that are at risk of extinction. Through the research of experts from all over the world who are integral to our 18 national commissions, over 700 products in 50 countries have been chosen for the Ark.

• With Mercati della Terra project, the Foundation supports the development, diffusion and enforcement of the relationships between the farmers' markets of the world, to reduce the number of intermediaries between producers and distributors, which will lessen the distance food travels from field to table.

• The Slow Food Foundation also promotes the exchange of information and knowledge between members of different food communities through participation in Terra Madre. Terra Madre is an event held in Turin every two years and is attended by 5,000 producers from 130 countries.

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The gift of bees

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Introduction

Beekeeping, compared to other types of animal farming, has several advantages. Here are a few:
• Bees do not need feeding like other animals, as they are able to find food by themselves almost all year round.
• Bees produce honey even in dry and semi-dry areas unsuitable for cultivation.
• When using traditional hives, all the material needed to build them can be found on site.
• Beekeepers do not need to own land.
• Once started, beekeeping is a self-financing business.

All this allows a community, or an individual, to start a project even with few funds available.

Six different products can be obtained from beekeeping: honey, beeswax, pollen, propolis, royal jelly and poison. Of all these products, the ones that can be most easily preserved and sold - both locally and abroad - are honey and beeswax.

HONEY is a sweet and viscous fluid that bees keep in their hive, inside the comb cells. Usually, honey found in closed cells is sufficiently dry and can be preserved for an indefinite amount of time. Honey inside open cells may contain too much water and may therefore ferment, if harvested.

BEESWAX is produced by the bodies of bees and is used to build combs which will contain honey and the brood.

WHO CAN BECOME A BEEKEEPER?

Anyone can be a beekeeper, even young people and women. The only people who cannot keep bees are those who suffer from allergies.

Slow Food honey Presidia

The Terra Madre network includes 58 beekeeper communities and 5 Presidia:
Canudo nectar of the Sateré Mawé (Brazil)
Wukro White Honey (Ethiopia)
Wenchi Volcano Honey (Ethiopia)
High Mountain Honeys (Italy)
Polish Mead (Poland)

The gift of bees

The bee is a magic insect that produces 'gold' - honey! Honey is sweet, nutritious and natural. Is this why people keep bees? Sure! But honey is not only a delicious food, it also means money! Honey can be sold and the profit can then be used to buy commodities for the community.

Life and organization inside the hive

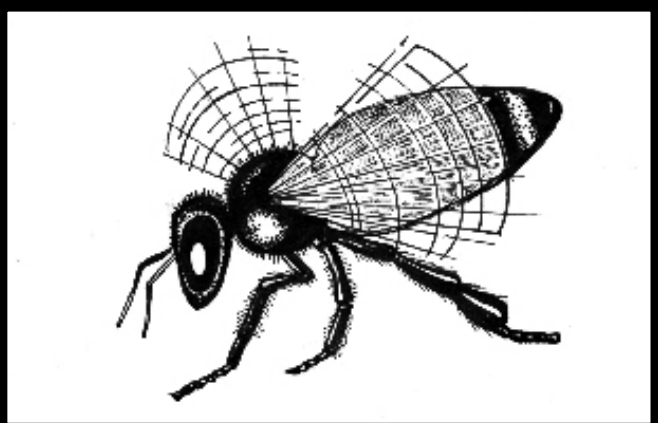
Honey bees can be found in most of the Old World and have been imported by man to other continents too.
Several species of bees exist; they differ in color, size and, most importantly, temperament.
Some African species have a strong tendency to swarm, others can be particularly aggressive. These peculiarities are the result of their adaptation to the different climates and environments in which they live.

How a bee colony is structured

As with other animals, there are male and female bees. The queen and worker bees are female. In each hive, a queen lays the eggs from which all the other bees are hatched. 10,000 to 50,000 worker bees do all the work in the colony. According to the time of year, the hive also hosts 300 to 800 males, called drones.

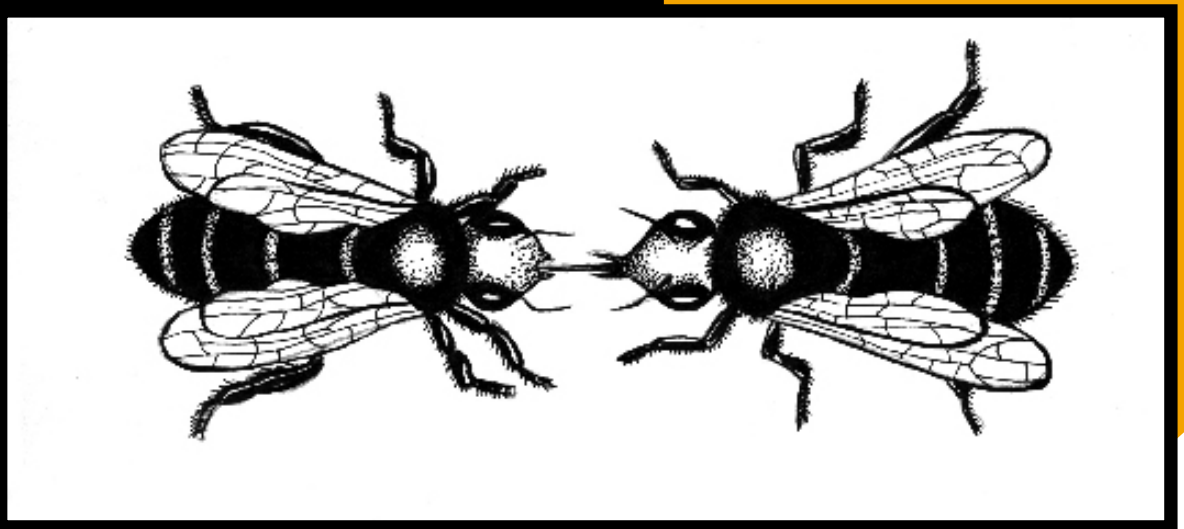
The brood

Again, depending on the time of the year, the hive can contain eggs or immature bees at different stages of development: the brood.
The brood in open cells can consist of eggs (the first three days after they have been laid), larvae (from the fourth until the eighth day) and pupae (from the eighth until the twenty-first day approximately).



on the letf: FANNING BEE
under: TROPHALLAXIS

Bees that go back to the hive pass the nectar on to other bees waiting for them at the entrance.



The bees' nest

The colony nest comprises of vertical wax combs made of hexagonal cells. These cells can be of two types: small ones are where worker bees are hatched, while drones are born in the bigger ones.
Both types of cells are also used to store honey and pollen collected by bees. Usually honey is placed in the higher part of the comb, while the brood is in its central area. There is also a third type of cell, used exclusively to raise queens: the royal cell.

How bees develop

Bees are hatched from the eggs laid by the queen on the bottom of cells. If eggs are laid in female cells and fertilized, they will hatch worker bees; if they are laid in male cells and are not fertilized, they will generate drones. After three days, eggs produce larvae. For the first three days of their lives, larvae are fed with the jelly produced by nurse bees (very young bees); from the third until the eighth day they are fed with a mixture of pollen and honey, with the exception of larvae destined to become queens, which only eat royal jelly throughout their development period.

Remember: if a worker larva is fed only with royal jelly, it will become a queen!

If a queen accidentally dies, bees may choose a few worker larvae and feed them with royal jelly in order to turn them into new queens.
From when the eggs are laid, it takes about 16 days for a queen to fully develop, 24 for drones and about 21 for worker bees.
When the cell is closed, the transformation from larva into pupa begins.

The queen

There is generally only one queen in a hive: she can be recognized as she is larger than a worker bee and longer than a drone, and her wings do not cover her whole abdomen.
The queen has a sting too, but she only uses it to kill other queens. Shortly after being born, the queen kills all her rivals. After five days, she takes a few flights to get her bearings and then takes a nuptial flight, when she mates with several drones. The drone seed is kept in a bag-shaped organ located in the abdomen. It will be used to fertilize all the eggs laid by the queen, except for the male ones.
If, for any reason, the queen is unable to become fertile, the eggs that she lays will only generate drones. In this case, the colony will die within a few weeks.
What should a beekeeper do in such a situation? Find out on pages 16-17!
A few days after the nuptial flight, the queen begins to lay eggs. She can lay more than 1,000 a day! If, for some reason, the sperm she has stored finishes, she will become a drone layer.
The queen produces 'smells' called pheromones, which regulate the colony's activities. When the queen gets old and no longer produces these pheromones, worker bees prepare a few royal cells to replace the old queen with a new one.
If, in a orphan colony, all larvae are older than three days, bees can no longer raise a new queen.
In such cases, the ovaries of some worker bees develop and they start laying eggs. But as they have not been fertilized, they can only produce drone eggs. These workers are called 'laying worker bees'.

Drones

Drones do not carry out any work within the hive and do not collect pollen or nectar. Their only task is to fertilize queens. They are bigger than worker bees and have larger eyes and wings to see better and reach queens during their nuptial flights.
Drones are ready to mate nine days after their birth and start flying outside the hive looking for virgin queens. They can cover several kilometers and they often pool in specific areas.
Drones that manage to fertilize queens die straight afterwards.
The colony raises drones only when there is plenty of pollen and nectar. In times of scarcity, they are no longer fed and are driven away from the hives.

Worker bees

A colony contains a very high number of worker bees — up to 50,000! They are infertile and have a long tongue to suck nectar from flowers. Worker bees have several features that queens and drones do not have: a bag to carry nectar from flowers to the hive, baskets on their legs to carry pollen, glands in their head to produce food for larvae and queens, glands for the production of beeswax to build combs and a sting to protect themselves against attackers.
The kind of work carried out by worker bees depends on their age. During the first three weeks they are called house bees and carry out tasks inside hives; for the rest of their lives, they work outside hives and are called foraging bees.
House bees:

- clean the hive and combs
- feed the brood
- take care of the queen
- build combs
- keep the hive cool by fanning it with their wings
- deposit nectar, pollen and water in the combs
- guard the hive entrance

Cleaning

Cleaning is the first thing that bees need to do after their birth. They clean the hive from dirt and dead bees and make sure that cells are ready for the queen to lay her eggs inside them.

Feeding the brood

When they are three-five days old, worker bees start feeding the brood. They are now called nurse bees.

Attending the queen

The next task is to feed and look after the queen bee. Bees around her constantly touch her with their tongues and antennae to serve her.

Orientation flights

Young bees start practicing their flying skills and learn how to recognize their hive. This allows them to fly further and further away from the hive within a three-kilometer radius and, if necessary, even beyond.

Building the combs

Combs consist of hexagonal cells used both to raise the brood and to store honey and pollen. Between the twelfth and eighteenth day of life, bees produce beeswax through the glands under their bodies. When first exuded, beeswax is fluid but it then hardens and turns into small flakes. Bees lift these flakes with their mandibles and legs and work it to build the combs.

Keeping the right temperature inside the hive

Keeping the temperature under control is one of the most important tasks for house bees. If it is cold, they gather in a tight group and generate heat. On the other hand, if it is too warm, some of them will go to the hive entrance and start fanning with their wings to generate an air current. The required temperature is 33-36°C, but the brood must be kept at about 35°C.

Honey production and storage

When they are about 20 days old, workers become foraging bees and bring nectar back to the hive. House bees then store the nectar inside cells, where it dries thanks also to the air current generated by fanning bees.

Water and pollen storage

Foraging bees also bring back water, pollen and propolis and house bees must take care of these substances too. Water is used to cool the hive when the weather is hot and dry. Water is also mixed with honey and pollen and fed to older larvae (three-six days old). Pollen is stored in the combs around the brood.

Guarding

Some of the hive activities are designed to protect the colony from possible dangers. Bees prevent bees from other families from entering the hive, they kill or drive away old and ill bees, they get rid of drones when they are no longer necessary. Also, they do not allow predators to get into the hive. Guarding the hive is the last task that a worker bee carries out before becoming a foraging bee. Guard bees protect the hive entrance from enemies and inspect all the nectar and pollen that are brought to the hive.

Foraging bees

Workers become foraging bees between the eighteenth and twenty-first day of life, when the royal jelly and beeswax glands start to deteriorate. Now bees have reached the optimal conditions to fly and are familiar with the environment around the hive. They choose to collect nectar, pollen, propolis or water according to the needs of the colony.

Nectar

Nectar is a sweet fluid secreted by flowers. Bees recognize flowers through their sight and smell. One bee can carry up to 85% of its own weight.

Collecting water

Collecting water is one of the most important things to do. Bees can use rather drastic methods to do this: they suck water from clothes hanging out to dry and from damp places inside houses. Through their proboscis, it takes them just a few minutes to collect a lot of water. They take it to the hive and then fly back out to look for more.

Scout bees

Scout bees explore the territory searching for food or a place to build a new hive and then fly back to pass the information on to the rest of the colony. They communicate through a sort of dance which indicates the direction and distance of the target.

Robbing bees

All worker bees are 'robbers', as they try to steal anything they like. This happens especially when food resources are scarce or when a hive has been abandoned or is very weak.

The anatomy of bees

Bees are the most useful insects to man. In order to carry out their work, they have special organs. Let's see what they are like.
Like other insects, bees have a head, a thorax and an abdomen.

Head

In the head, we find the eyes, the antennae, the mandibles and the proboscis.

Eyes: bees have five eyes in total, two big ones and three small ones. Drones have bigger eyes, so that they can find virgin queens more easily during their mating flights.

Antennae: bees have two antennae and they use them to communicate. Bees constantly touch each other and thus exchange information through smells.

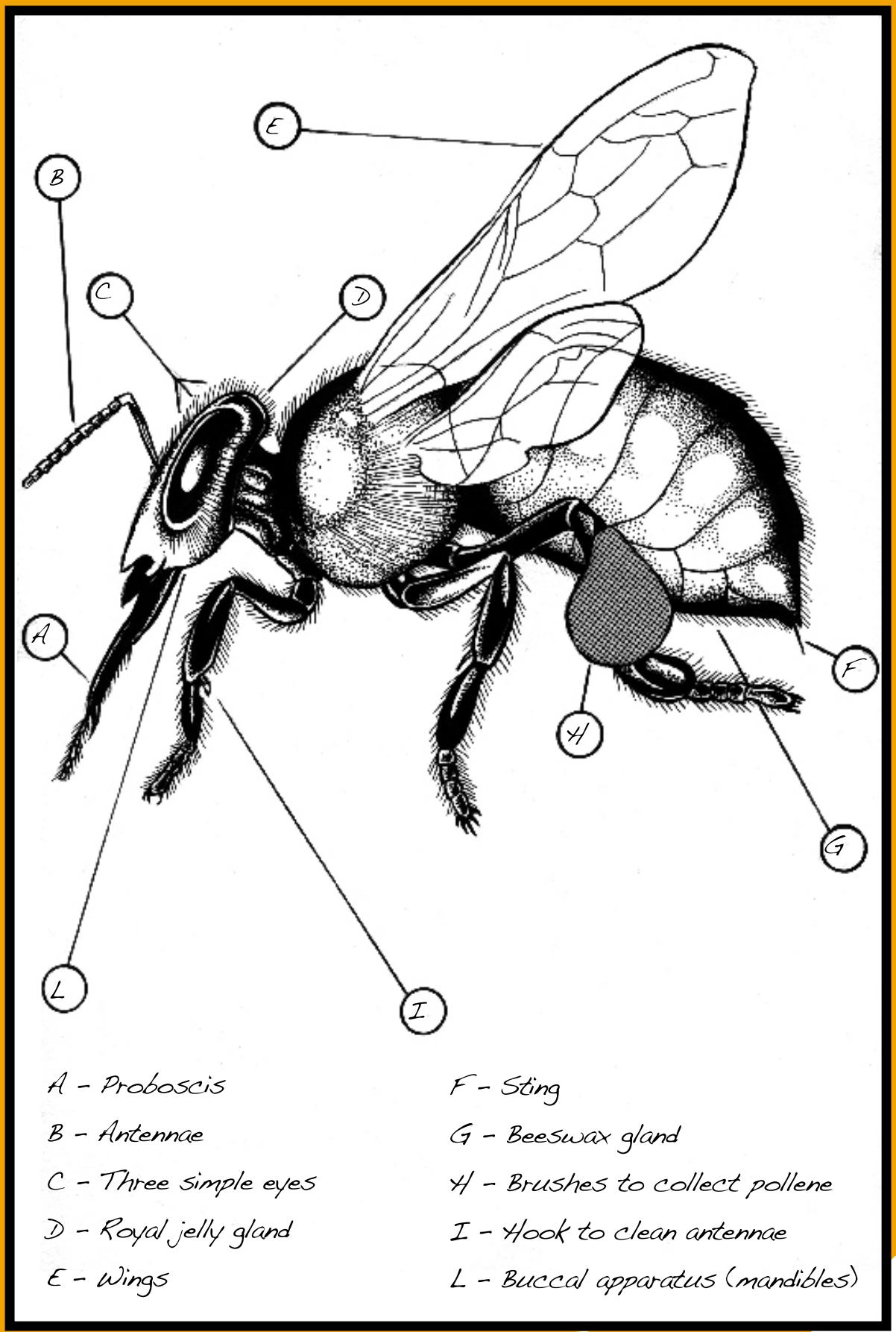
Mandibles: the two mandibles are used to grab things. They are also used to mix pollen and to work beeswax.

Proboscis: used to suck nectar, honey or other fluids.

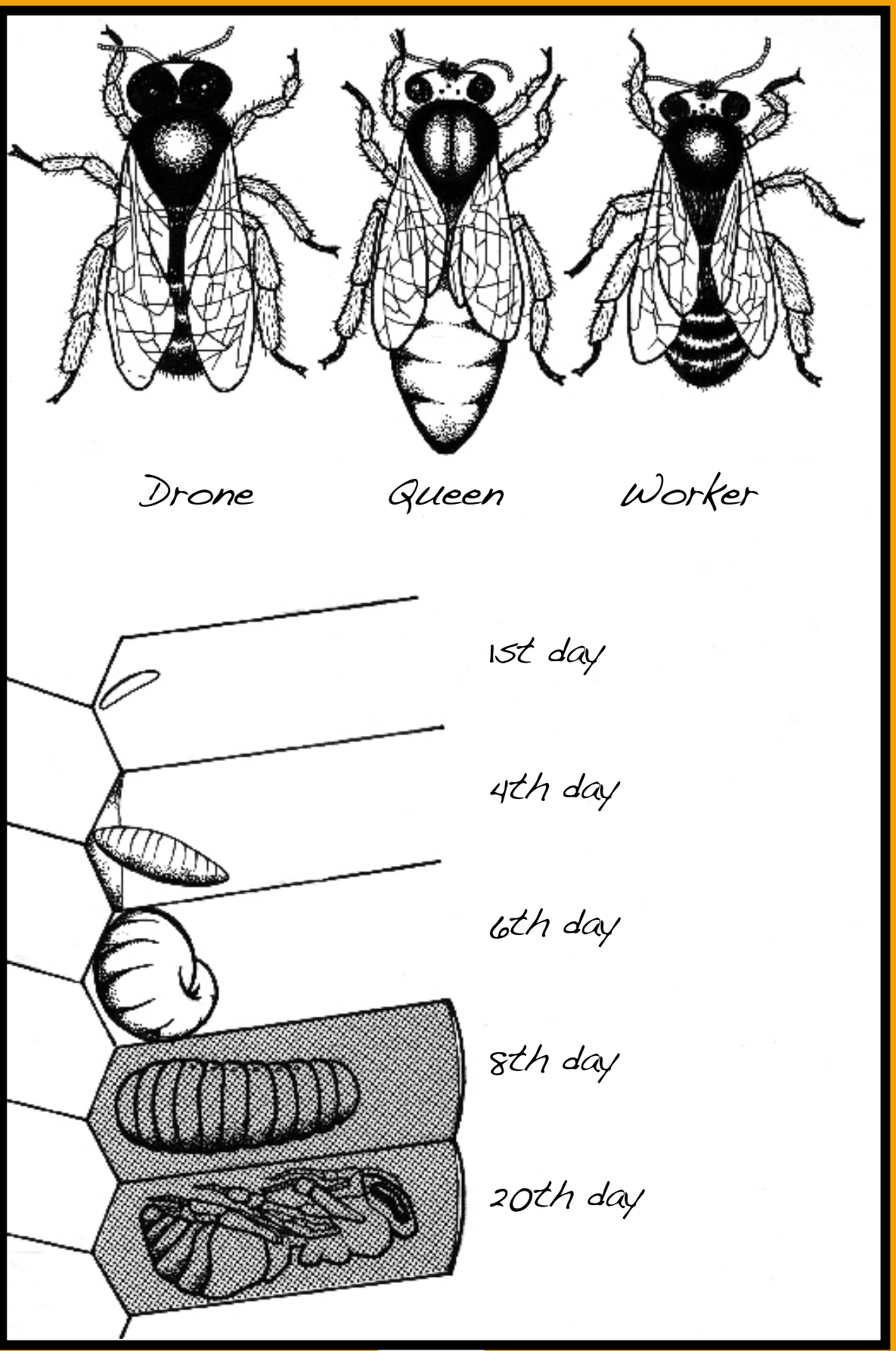
Thorax

The thorax supports the legs, the wings and the head.

Legs: bees use them to walk, but they also have other functions. For instance, they have brushes to collect the pollen pressed against the pollen baskets. Drones and queens do not have pollen baskets because they do not work as foraging bees. On the legs, there are also two semicircles to clean the antennae.



A - Proboscis
B - Antennae
C - Three simple eyes
D - Royal jelly gland
E - Wings
F - Sting
G - Beeswax gland
H - Brushes to collect pollene
I - Hook to clean antennae
L - Buccal apparatus (mandibles)



Wings are necessary to fly and to fan the hive.

Abdomen

The abdomen contains all inner organs: heart, intestine, reproductive and excretory organs.
For a beekeeper, the beeswax glands, the glands producing smells (pheromones) and the poison glands are very important.

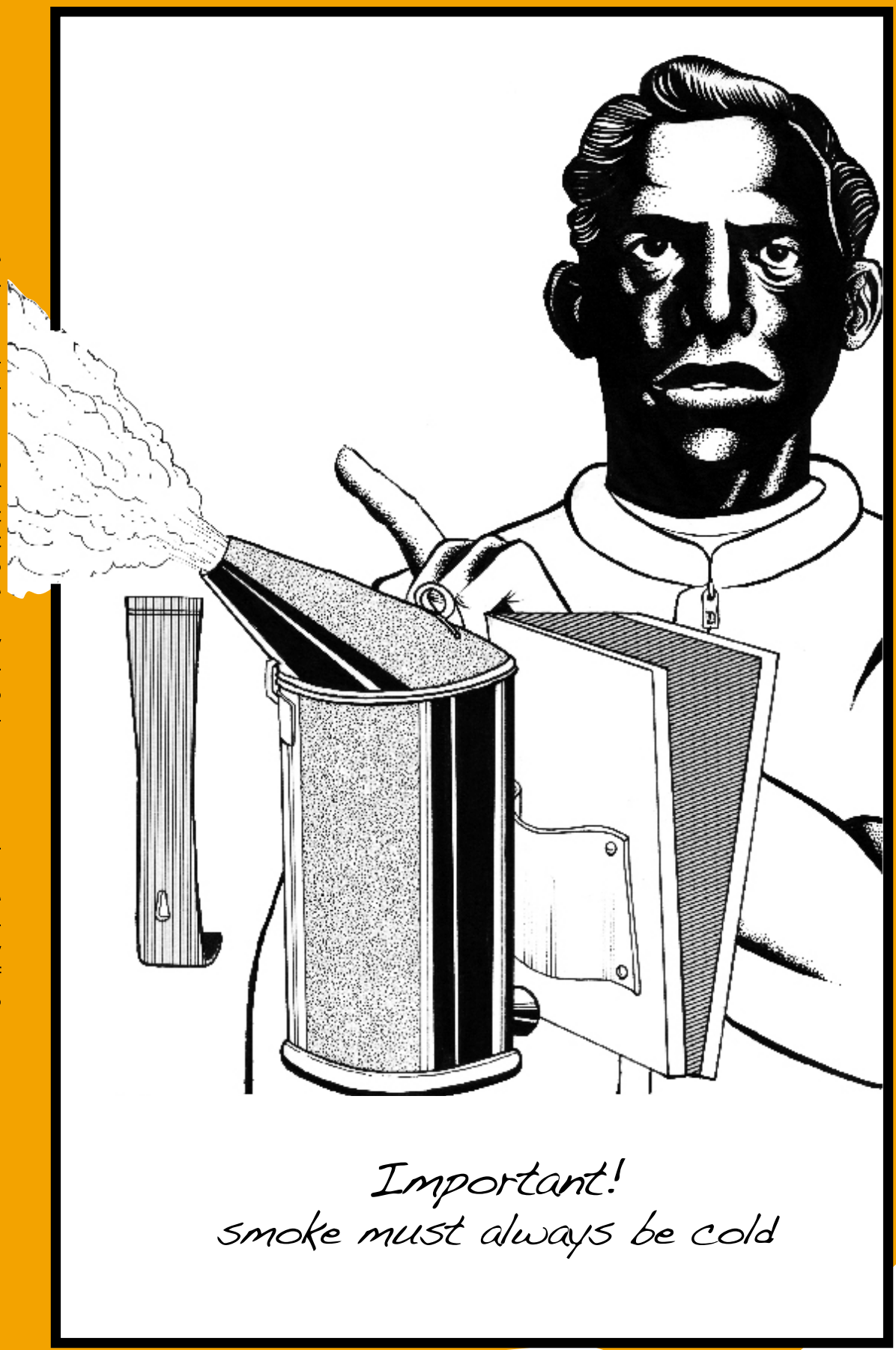
The beekeeper's equipment

The smoker

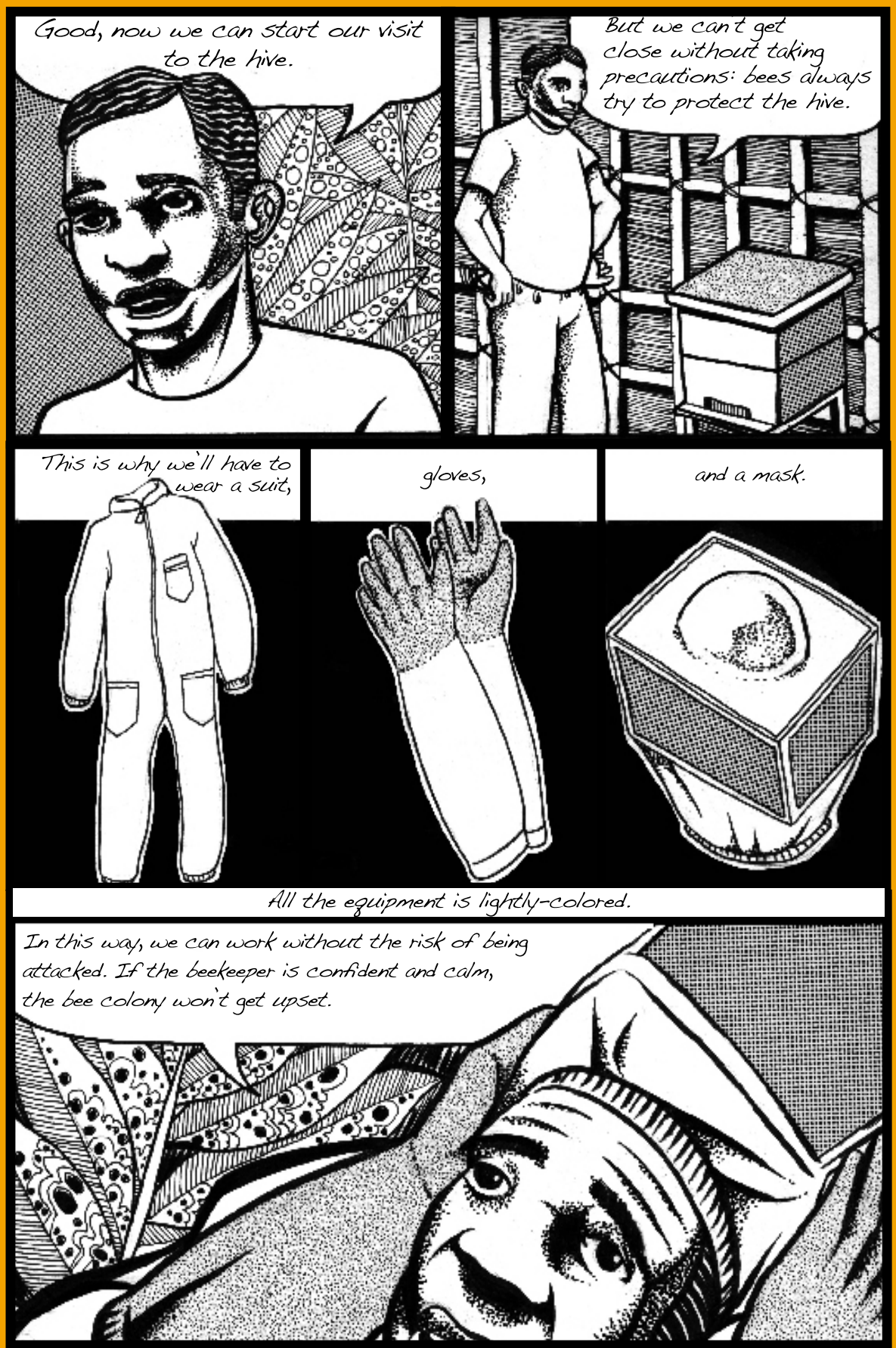
It is almost as fundamental as the hive itself. No bee will ever allow a beekeeper to visit the hive without defending itself against him.
Bees are renowned for their aggressiveness: a beekeeper should never check a hive without using a smoker.
The smoker is made up of two parts: a metal container, large enough to contain dry matter that can burn for at least 30 minutes, and a bellows that pushes air into the container, so that smoke comes out of the chimney. No fuels or oils should be placed inside the container, only materials such as wood, manure, shells, dry leaves or other dry substances that produce cold and white smoke. Smoke calms bees down, so that the beekeeper can work undisturbed.

The lever

It is needed to open the hive and remove combs. With a traditional hive, a knife may be enough. During the harvesting season, a knife is also useful when combs are glued to the body of the hive or to separate portions of a comb which are stuck together or to the hive wall.



Important!
smoke must always be cold


Good, now we can start our visit to the hive.
But we can't get close without taking precautions: bees always try to protect the hive.
This is why we'll have to wear a suit,
gloves,
and a mask.
All the equipment is lightly-colored.
In this way, we can work without the risk of being attacked. If the beekeeper is confident and calm, the bee colony won't get upset.

The brush

It is used to remove bees from combs and gently let them into a container or into the hive. Branches with leaves or animal feathers are equally effective.

The feeder

It can be a jar or a special comb-shaped container.
Modern beekeepers use protective clothing: a suit (preferably light-colored), gloves, a veil and boots.

The suit

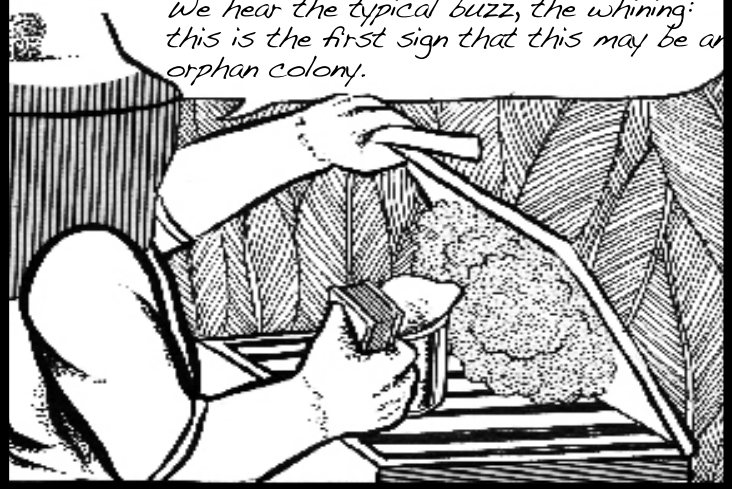
It covers the whole body, except the head, hands and feet. The VEIL is very important and protects the face, head and neck. GLOVES must be flexible (rubber ones are recommended) and protect wrists, hands and fingers from stings. A pair of BOOTS protects feet from stings.

This colony had lost its queen. She may have been replaced by the bees.
We can see there are royal cells. The cap of the one on the right is open. That's where the new queen was born.
Here's the new queen: the long abdomen shows she's fertile and ready to lay eggs. In a few days we can check if new eggs have been laid and thus be sure that everything went well.
This is not always the case: a queen may die, eaten by a bird while she is taking her mating flights, or because she is too old.
In these cases, if the family has no young brood available to raise a new queen, the colony will be orphaned. An orphan colony is quite easy to recognize: bees make a loud, long buzz, as if they are crying, and are restless.

WHAT CAN A BEEKEEPER DO IN SUCH CASES?

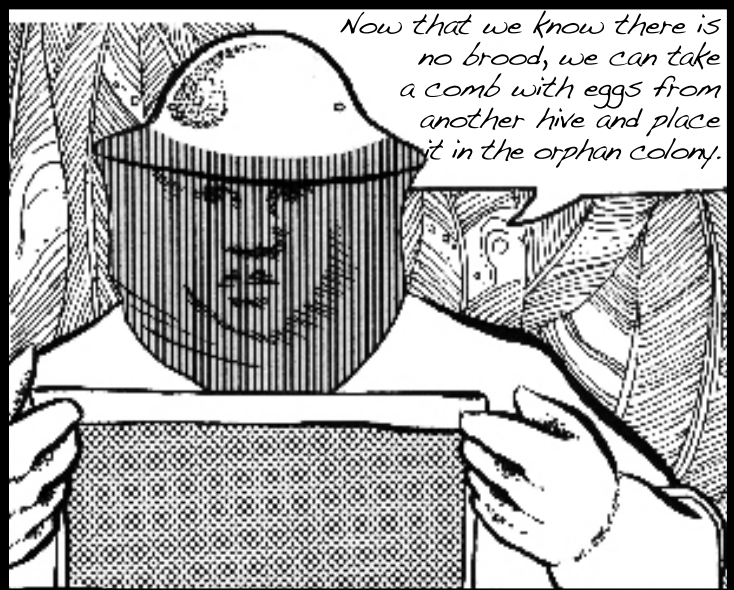
Now let's visit this colony.

We hear the typical buzz, the whining: this is the first sign that this may be an orphan colony.

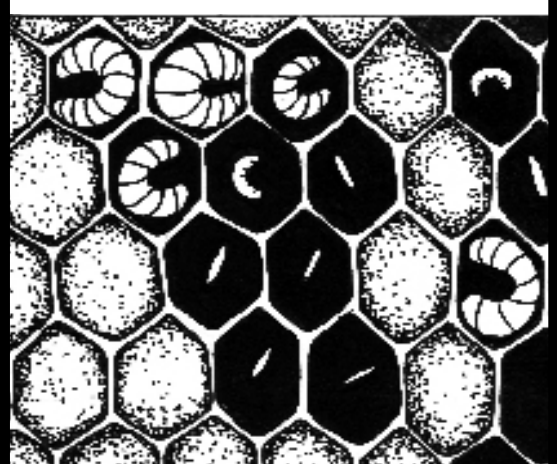


We must still make sure there's no trace of a brood.

Now that we know there is no brood, we can take a comb with eggs from another hive and place it in the orphan colony.



This will give bees the opportunity to raise a new queen.



In about two weeks, the queen will be born. Until then, it's better not to visit the hive.

Managing hives

The apiary

The apiary is the place where hives are located. Bees must have access to nectar plants and water. The apiary must be protected from thieves - it is a good idea to mark hives with the owner's name or initials.

The ideal location

The ideal place to have an apiary should:

- be away from inhabited areas, where bees can disturb people
- have plenty of nectar plants
- be easily accessible
- have access to a water source
- be sheltered from the wind
- be protected from thieves.

Arrangement of hives

Modern hives must be placed on supports that raise them from the ground, so that they are protected from insects such as ants.

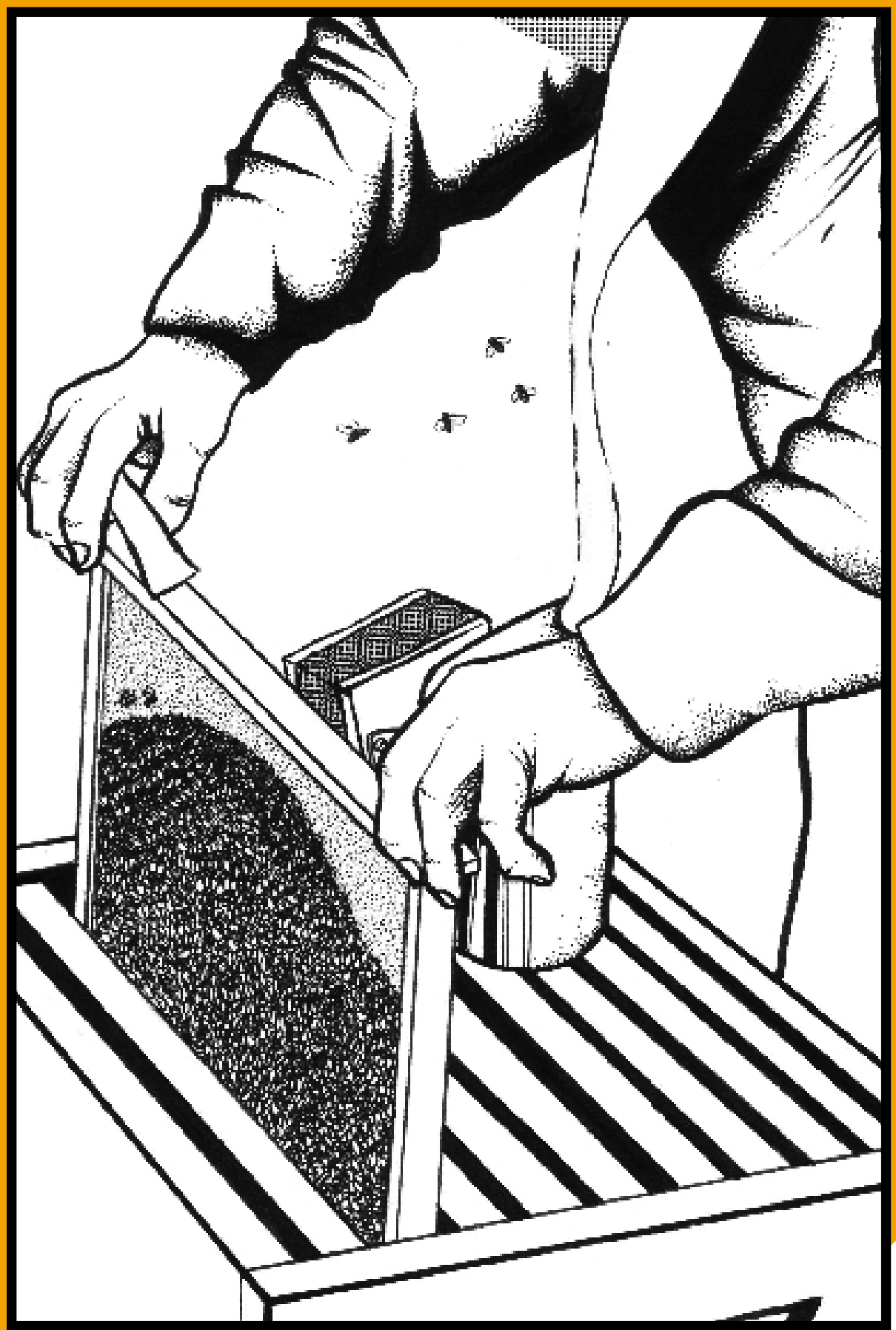
How to put bees in a hive

Hives can be filled with bees in four different ways:

- capturing a swarm
- finding a wild bees' nest and transferring it to the hive
- buying a colony
- splitting up families.

How to capture a swarm

Once the swarm has been sighted, the first thing to do is to prepare the hive that will house it. If a modern hive is used, this shall be prepared



with ready-made combs or beeswax comb foundations.
Then, you need to figure out how to capture the swarm, possibly with the help of someone else. Once you're ready, the branch where the swarm is clustered can be cut and placed inside the hive. If you cannot cut the branch, the bees can be dampened, so that they will not fly away. Now they can be shaken directly into the hive.

Finding a wild bees' nest and transferring it to the hive

In this case, bees are very aggressive. This is why, before getting close to the nest, you need to protect yourself with a suit and a mask. Also, a lot of smoke must be produced with the smoker.
With a knife, try and cut the combs without breaking them. Then, one by one, fasten them to the frames (with no beeswax comb foundation) with a fine cord. If you're lucky, you will also transfer the queen. If not, the bees will build royal cells and a new queen will be born.
The hive where the bee colony has been transferred to should be moved at least 3 kilometres away from where it was removed, otherwise only young bees will stay in the hive.

Buying a colony

This makes everything much easier! You just need to go to the seller with an empty hive. Make sure that the combs transferred into your hive also contain the queen.

Splitting a colony to obtain two families

If you already have modern hives, their number can be increased by splitting the nest into two halves. Be careful: you can only split up hives with at least eight combs and you need to make sure that there is enough flowering.
The easiest way is to remove four combs and put them into the empty hive. Make sure that both hives contain brood with eggs or very young larvae and enough adult bees to keep the brood warm.
The orphan hive will build royal cells so that new queens can be born. The empty spaces inside the hives must be filled with beeswax comb foundations.
After about one month, check that both hives contain a brood.
For the operation to be successful, you must make sure that there are drones. Splitting up a family should be avoided in times of scarcity.
Ideally, the new family should be placed at least three kilometers away from the original one. If this is not feasible, the new colony must contain more bees, as many will go back to the old one.

Managing colonies

Once bees are put in the hive, the beekeeper must learn how to visit it. He will be more successful if he observes what happens inside the hive during the different times of the year.

How to inspect a hive

To open a hive, you will need to activate the smoker and direct the smoke onto the bees. After lifting the crown board, smoke the nest and extract the combs with the help of a lever or a knife. Look at the arrangement of the brood and the honey and look for any royal cells. Their presence means that the hive is preparing to swarm.

How to prevent being stung by bees

Bees sting! And they can kill! Allergic people should stay away from bees. When a bee stings, the sting stuck in the skin gives off a smell which attracts even more aggressive bees. The best thing to do is to extract the sting by scratching it with your nails and smoke the affected area to mix smells.

When do bees sting the most?

- if you open the hive without using any smoke
- if it is cold, rainy or windy
- if you rock the hive or disturb it in any way
- if you are wearing black
- if you make abrupt movements while holding a comb
- if you are scared: fear makes you sweat, bees can smell that and get irritated.

How to prepare frames for a Langstroth hive

Frames must be fortified with a fine iron wire where the comb foundation will be mounted.
The comb foundation is then attached to the frame by passing a very hot bar of iron on the wire, which thus penetrates the molten beeswax of the comb foundation. Alternatively, you can heat up some beeswax in a pot and then pour it over the iron wire. Frames with comb foundations must be placed inside hives when bees collect nectar, otherwise combs will not be built.

How to merge two colonies

Sometimes it is necessary to merge two colonies, either because one no longer has a queen or because two weak colonies do not produce any honey, while a strong and populated one does!
When two weak colonies are merged, it is always better to kill the least efficient queen one day before. If you leave both queens alive, one will be killed by the bees, and she may not be the weakest one.
When carrying out this operation, it is a good idea to confuse bees with some scented substance, so that they all smell the same and do not fight each other.
The best moment to merge two colonies is in the evening, when bees are about to stop flying. This reduces the risk of theft.
Before merging the two families, they must be abundantly smoked. Remember: if the emptied hive is not moved away, many bees will go back to where they originally were and will try to get into the closest hives.

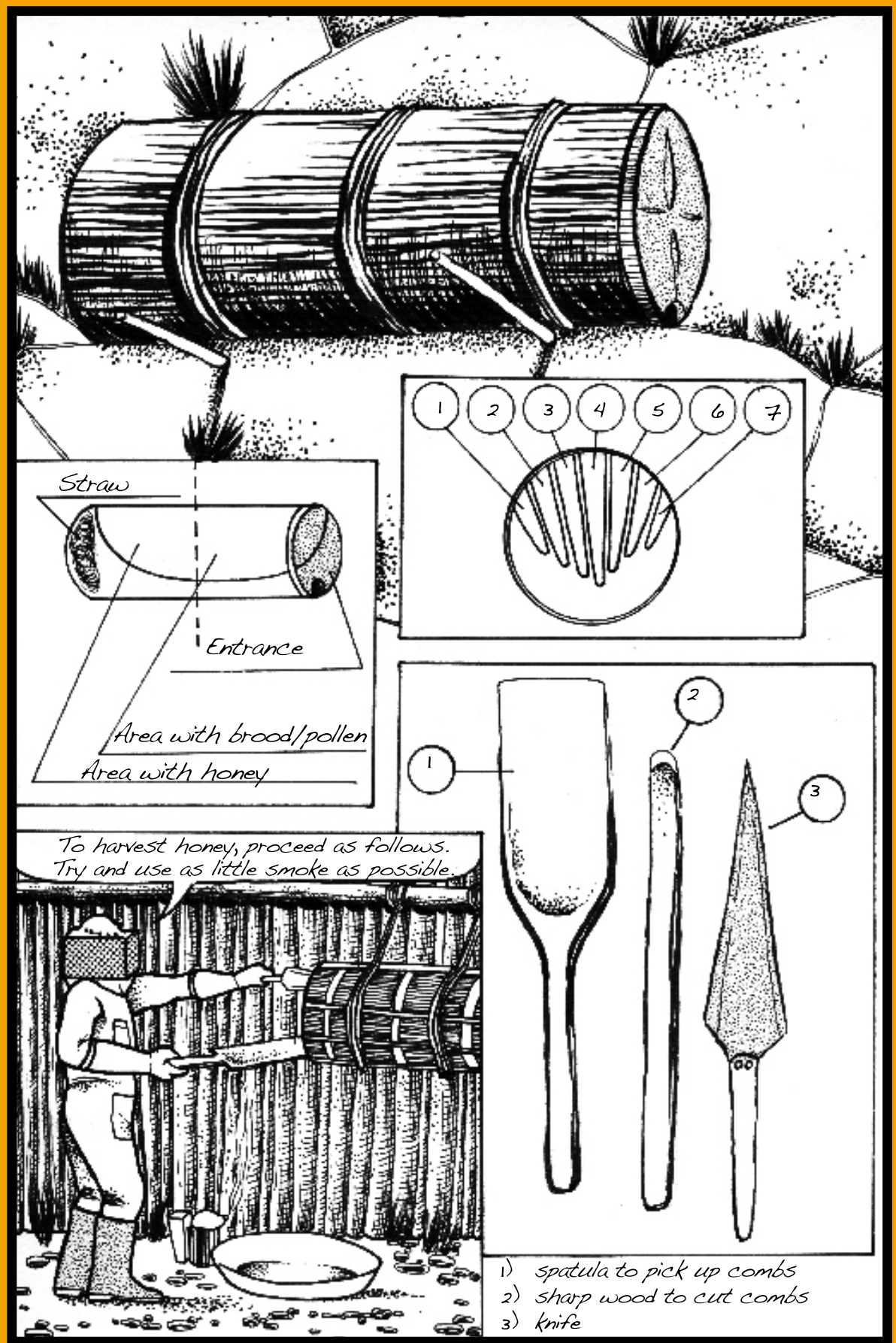
How to evaluate a queen

The queen is the mother of all bees, so a good queen is one that lays many eggs.
Many eggs mean a large brood, hence large populations which ensure rich honey harvests.

How to prevent theft

Bees, by instinct, collect anything that is sweet and store it for times of shortage. This instinct is so strong that sometimes they steal honey from weaker hives.
When a colony is being robbed of its honey, you will see many bees flying around the hive, quickly going in and out of it. Robbing bees are very nervous and sometimes darker, as they get dirty with honey and lose their hairs. They are also very aggressive and sometimes attack people and animals.
To prevent theft, avoid opening the hives in times of scarce resources. When visiting hives, do not leave combs and honey in the open. Reduce entrances to weaker hives: only leave one small hole. In times of scarcity, only feed bees in the evening, when they are not flying.

Traditional and modern hives



Traditional colonies

They produce less honey than modern ones and this can be a good reason to consider switching to more efficient hives.

Traditional hives

Traditional hives have been used all over the world since time immemorial and can be built with different materials according to geographical area. They can be made of straw, clay or wood.
Inside them, bees build combs, which are then collected by the beekeeper with a knife or a spatula.

Modern hives

Modern hives are the result of the research done by Lorenzo Lorraine Langstroth on the organization of spaces inside a hive. He discovered that the minimum necessary distance for two combs to remain separated is about 7-9 millimeters. After this discovery, Lorenzo designed a hive which is now used all over the world and carries his name: the Langstroth hive. This hive contains 10 wooden frames on which bees can build their combs in a parallel arrangement, as they would do naturally. Compared to a traditional hive, this one has the advantage of removable frames, which can be extracted without bothering the bees. Also, honey can be harvested without destroying the combs: in the Langstroth hive, the nest with the brood can be separated from the super hives

that contain honey with the help of a queen excluder. This is a calibrated grid which prevents the queen from passing through its mesh, so that she is confined to the brood chamber, while other bees (smaller than the queen) are free to move from one compartment of the hive to another.

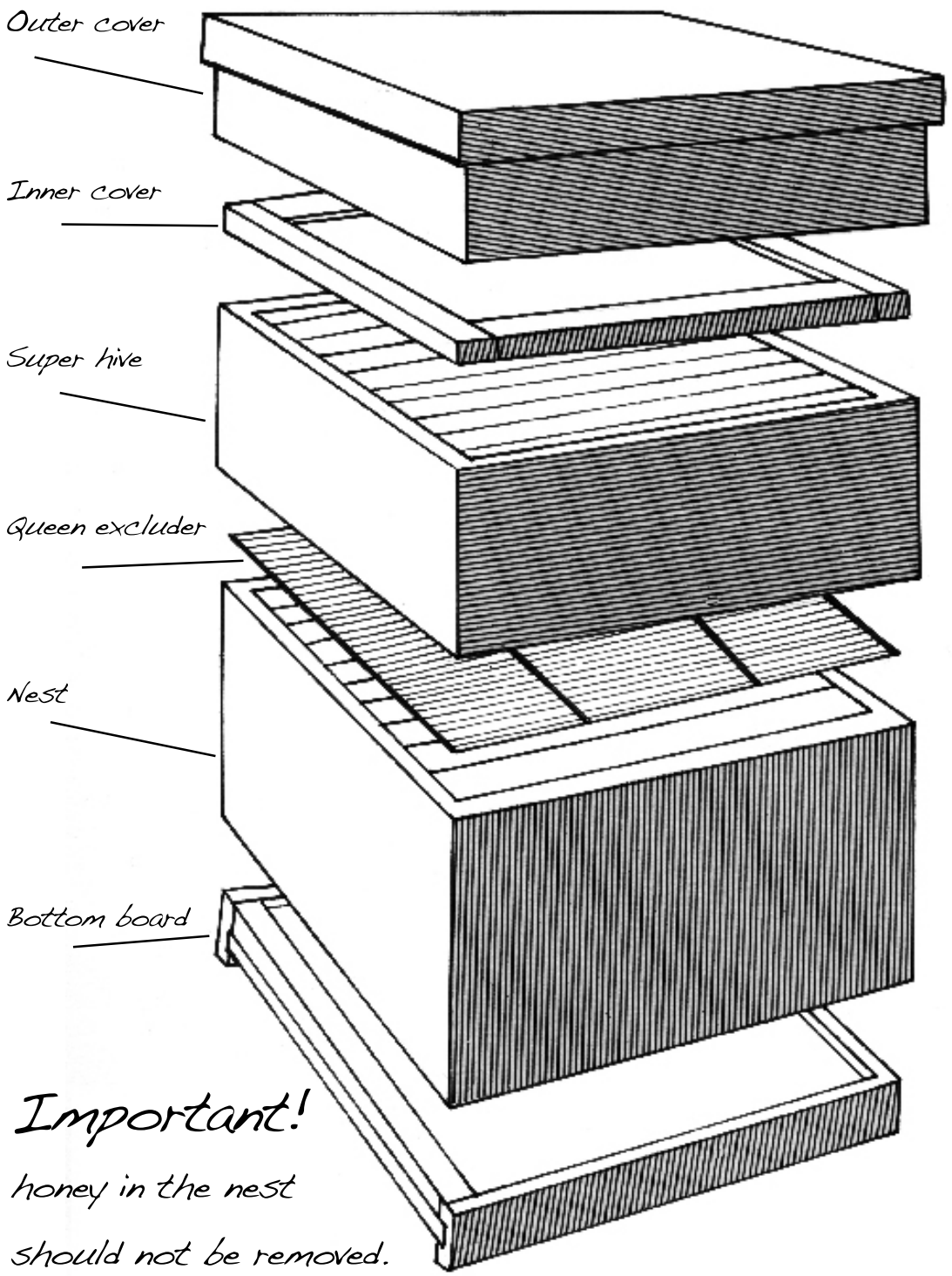
Advantages of modern hives

- Combs can be easily extracted and the hive can be visited without damaging them
- Hives can be easily transported from one place to another
- Honey can be extracted with a centrifuge without breaking the combs, which can then be restored to the bees
- The honey obtained is clearer and cleaner
- Hives can be easily doubled by simply distributing combs between two hives
- A bee swarm can be placed inside a modern hive more easily.

Disadvantages of modern hives

- A modern hive is expensive
- It takes equipment and wood to build it
- Wood, if available, must be seasoned
- Frames must be fortified with wire and fitted with beeswax comb foundations
- A centrifuge is necessary to extract honey.

Now that we have removed all the honeycombs, we must think of a way to extract it and obtain the two products we want: honey and beeswax.
It's very important for combs with pollen and brood not to be removed.
Combs that only contain honey can now be placed in a honey press, where we also insert a bag filter.
The honey obtained must then be filtered and poured into a jar.



How to feed bees

Bees can be fed with honey or a mixture of water and sugar.
The food can be given with a jar or frame-shaped feeders.

When to feed bees

Bees can be fed when food is scarce or when colonies have just formed.

How to give water to bees

A water source must always be accessible to bees near the apiary. Water is fundamental: it dilutes honey and it is used to feed the brood and to cool down the hive when it is too hot. If no water is available near the apiary, the beekeeper should provide containers filled with water and floating brushwood, so that bees can drink without drowning.

How to harvest honey and extract it from combs

Honey extraction

When using traditional hives, combs are removed with a knife and a wooden spatula.

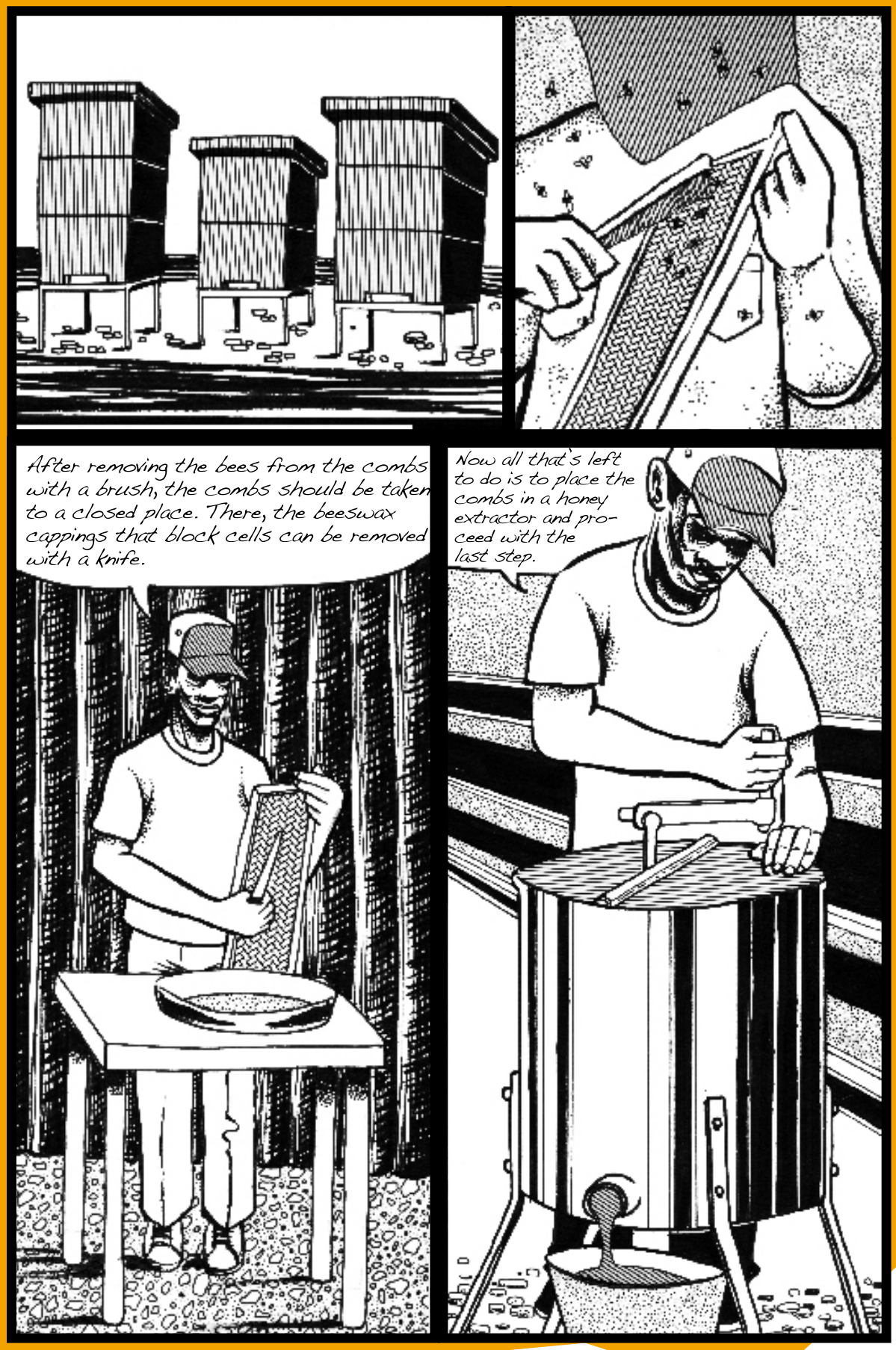
To separate honey from beeswax, combs are placed in a press. The honey obtained must be filtered through a bag filter (made of a very fine nylon mesh) before being jarred.

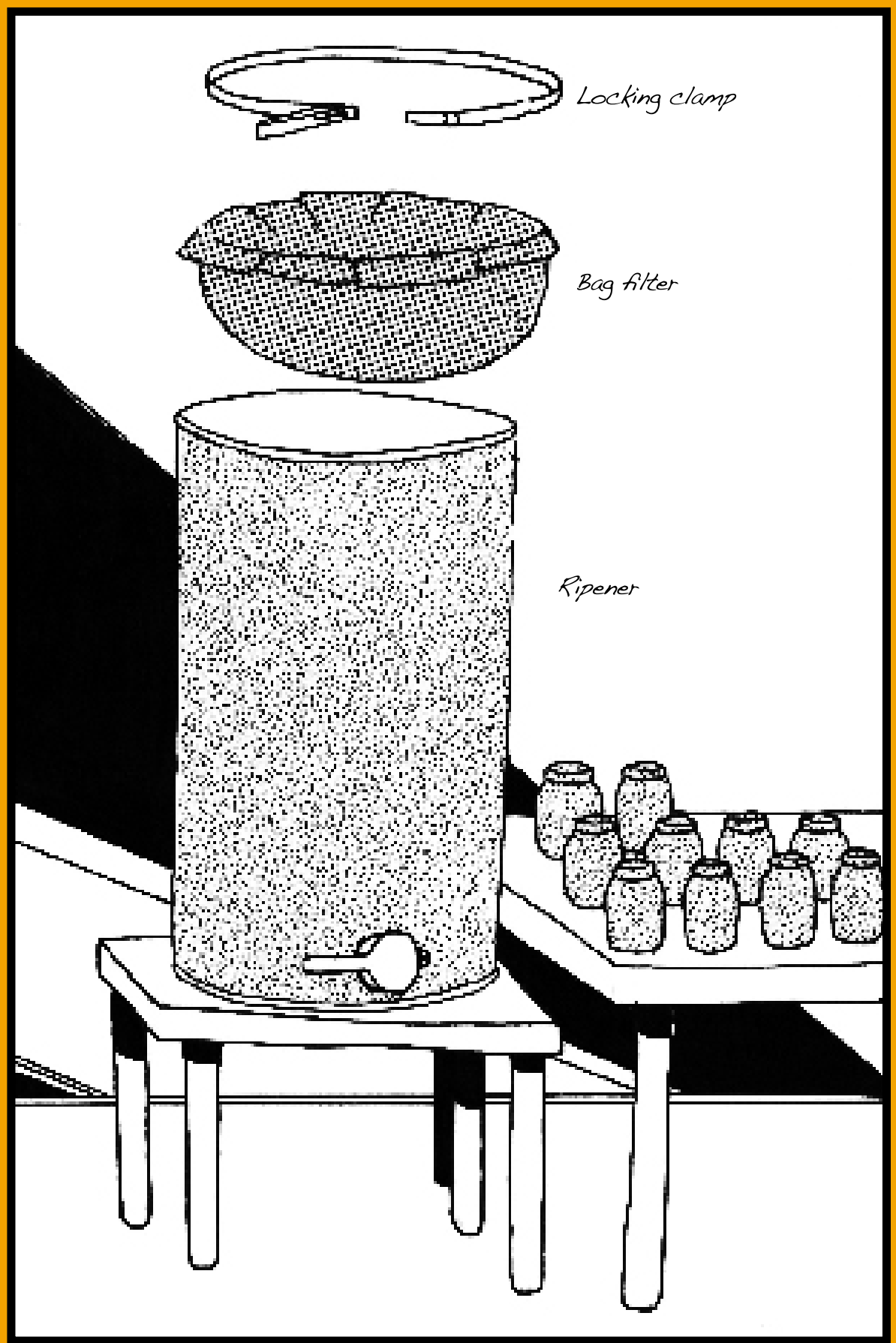
When using modern hives, combs full of honey can be taken out when the honey contained in super hives is inside capped cells. After opening the hive and using a moderate quantity of smoke, take out the combs, brush off any bees and place the combs in a container, safe from robbing bees.

Once the combs are taken home, remove the beeswax layer from the capped cells and place the combs inside the centrifuge to extract the honey.

Honey is now passed through a filter to remove any beeswax residue and then stored in containers. From these, it will later be jarred and finally sold.

It is important to extract honey when it has the right moisture content. A simple way to check its ripening stage is to squeeze a drop of honey between thumb and forefinger. When opening your fingers, if the honey is stringy it has reached the right maturation. If it hasn't, it


After removing the bees from the combs with a brush, the combs should be taken to a closed place. There, the beeswax cappings that block cells can be removed with a knife.
Now all that's left to do is to place the combs in a honey extractor and proceed with the last step.



is too fluid and needs more time to complete its dehumidification process.

Beeswax extraction

The ideal procedure would be to use a 'solar beeswax extractor': a metal box with a piece of glass on top. You only need to put beeswax inside it and leave the box in the sun, so that the wax melts.

The most widely used method is extraction with hot water. In this case, you will need a pot where beeswax can melt. Put water and beeswax in the pot and on a stove until beeswax is melted. Now take the pot off the fire and leave it to cool slowly. The day after, the beeswax will have hardened and can be taken out of the pot.

Raising queen bees

Learning how to raise queens is important to rapidly increase the number of hives.
In the previous paragraphs, we saw how worker bees can raise a queen from a young worker larva when they need to. The beekeeper exploits this instinct to have many queens.

Choosing the queen to reproduce

When choosing a colony to reproduce, three aspects must be taken into account: density of population, docility and production.

Raising a queen with emergency cells

When a queen is taken away from a hive, bees become aware of it and start building emergency royal cells. After one week, cells are capped and can be removed by cutting them off with a knife together with a piece of comb, so as not to damage them.
The removed queen bee must be placed in another hive, with a brood comb and a honeycomb. At the end of the season, you will have obtained a new family.
In order to have many queens, you need to:

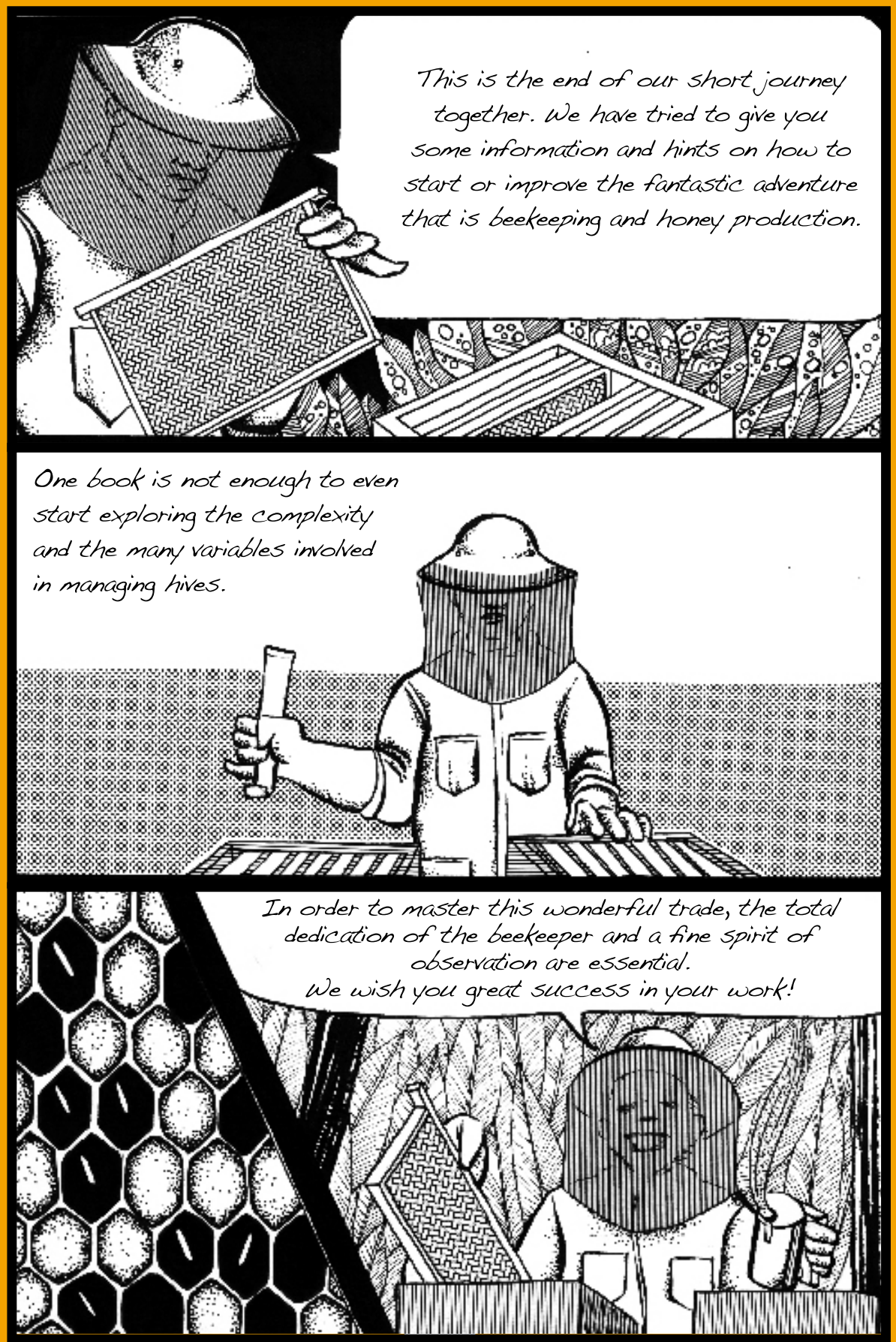
- count how many royal cells you have
- have hives in which to put the new families
- fill the new hives with two or three brood combs and honeycombs
- move the new hives about three kilometers away or, alternatively, add more bees
- remove the cells from the hive you have orphaned six days before
- place the cells in the hives by attaching them to the combs with a small twig
- after about 15 days, check if the new queen has laid eggs.

Swarm cells

When bees are about to swarm, the hive contains several royal cells. These can be used by moving the whole comb with the cells attached to it or by repeating the steps described above.

Supersedure cells

Sometimes, the royal cells found in hives are not swarm cells, but supersedure cells, used to replace an old queen. In this case, mother and daughter can live together in the same hive for a few months.


This is the end of our short journey together. We have tried to give you some information and hints on how to start or improve the fantastic adventure that is beekeeping and honey production.
One book is not enough to even start exploring the complexity and the many variables involved in managing hives.
In order to master this wonderful trade, the total dedication of the beekeeper and a fine spirit of observation are essential.
We wish you great success in your work!

Notes

Notes

Conclusion

We have tried to illustrate, simply and briefly, the most important practices that should be followed to produce high quality honey.
This manual is only a first tool to find out about the complex and fascinating world of bees. The rest comes from daily experience and passion.
The manual has been designed and written for Slow Food Presidia producers and all honey food communities.
It has been written by small beekeepers for small beekeepers.
We hope you will find it useful and that in future years, thanks to suggestions gathered through the Terra Madre network, it will improve and become even more helpful and exhaustive.

The gift of bees

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"If the bee disappears
from the surface of the earth,
man would have no more
than four years to live"

Albert Einstein

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